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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,925	06/27/2001	Mitsuhiro Yano	198786US2 RE	3745
22850	7590	11/16/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER HU, SHOUXIANG	
			ART UNIT 2811	PAPER NUMBER
			NOTIFICATION DATE 11/16/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

09/891,925

Applicant(s)

YANO ET AL.

Examiner

Shouxiang Hu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 08/432,812.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Reissue Applications

Applicant is reminded of the continuing obligation under 37 CFR 1.178(b), to timely apprise the Office of any prior or concurrent proceeding in which Patent No. 5,945,692 is or was involved. These proceedings would include interferences, reissues, reexaminations, and litigation.

Applicant is further reminded of the continuing obligation under 37 CFR 1.56, to timely apprise the Office of any information which is material to patentability of the claims under consideration in this reissue application.

These obligations rest with each individual associated with the filing and prosecution of this application for reissue. See also MPEP §§ 1404, 1442.01 and 1442.04.

Recapture of broadened Claimed Subject Matter

Claims 1-22 are rejected under 35 U.S.C. 251 as being an improper recapture of broadened claimed subject matter surrendered in the application for the patent upon which the present reissue is based. See *Pannu v. Storz Instruments Inc.*, 258 F.3d 1366, 59 USPQ2d 1597 (Fed. Cir. 2001); *Hester Industries, Inc. v. Stein, Inc.*, 142 F.3d 1472, 46 USPQ2d 1641 (Fed. Cir. 1998); *In re Clement*, 131 F.3d 1464, 45 USPQ2d 1161 (Fed. Cir. 1997); *Ball Corp. v. United States*, 729 F.2d 1429, 1436, 221 USPQ 289, 295 (Fed. Cir. 1984). A broadening aspect is present in the reissue which was not

present in the application for patent. The record of the application for the patent shows that the broadening aspect (in the reissue) relates to claim subject matter that applicant previously surrendered during the prosecution of the application. Accordingly, the narrow scope of the claims in the patent was not an error within the meaning of 35 U.S.C. 251, and the broader scope of claim subject matter surrendered in the application for the patent cannot be recaptured by the filing of the present reissue application.

Claims 1 and 12 each recite the subject matters of "not extending beyond an upper portion of said first gate" as presented in the 05-20-2002 amendment in the instant application, which broadens the scope of the claimed invention by also covering the feature that the recited semi-insulating plasma CVD nitride film is extending on (but not exceeding) the upper portion of the recited first gate. However, such broadening aspect is present in the reissue which was not present in the application for patent. The record of the application for the patent shows that such broadening aspect (in the reissue) relates to claim subject matter that applicant previously surrendered during the prosecution of the application (see the 11-25-1997 amendment in SN 08/432,812). In the 11-25-1997 amendment, applicant amended the corresponding claims in SN 08/432,812, which further narrowed the scope of the claims in the patent by further limiting to the feature of the recited semi-insulating film to "not extending to an upper portion of the first gate", which excluded a broader scope/aspect that the semi-insulating plasma CVD nitride film could be extending on (but not exceeding) the upper portion of the recited first gate. It effectively surrendered such a broader scope of claim subject

matter in the application for the patent. Thus, such broader scope of claim subject matter surrendered in the application for the patent cannot be recaptured by the filing of the present reissue application.

Duty to Disclose Information Material to Patentability

According to 37 CFR 1.56:

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

- (1) Prior art cited in search reports of a foreign patent office in a counterpart application, and
 - (2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.
- (b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and
- (1) It establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of a claim; or
 - (2) It refutes, or is inconsistent with, a position the applicant takes in:
 - (i) Opposing an argument of unpatentability relied on by the Office, or
 - (ii) Asserting an argument of patentability.

A *prima facie* case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

- (1) Each inventor named in the application;
 - (2) Each attorney or agent who prepares or prosecutes the application; and
 - (3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.
- (d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

(e) In any continuation-in-part application, the duty under this section includes the duty to disclose to the Office all information known to the person to be material to patentability, as defined in paragraph (b) of this section, which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

There are some references found to be material to the patentability of the instant invention, including at least, but not necessarily limited to, the prior art references cited by European Patent Office regarding the European Application SN 95107265.1 (Publication No. 0 685 890 A1), which (a counterpart application) and the instant

application both claim the foreign priority of Japanese Application SN 6-118386. These references are apparently known to the applicant; yet, they have not been fully disclosed by the applicant. Applicant is reminded of the duty, and is required to take action to fulfill the duty, to disclose to the Office **all information** known to that applicant to be material to patentability to the instant invention.

Drawings

Figures 19-22 are objected to, as they should be designated by a legend such as --Prior Art-- because only that which is old is illustrated.

Figures 1 and 8-12 are objected to because inconsistencies are found therein. According to Fig. 1, the portion of layer 16 underlying the gate layer 17 appears to remain in the final structure. But, it contradicts to what is shown in Fig. 7, wherein it is shown that such portion of layer 16 should have already been removed during the process step as indicated in the figure.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 12 each recite the subject matters that a first semiconductor region of a second conductivity type formed selectively in said first major surface of said first semiconductor layer so that said first semiconductor layer is exposed in a peripheral portion of said first major surface and said first semiconductor layer is exposed in the form of an insular region in a central portion of said first major surface. However, they each fail to clarify:

(A) The positional relationship between the recited first semiconductor region and the recited peripheral portion; and/or, where definitely the recited first semiconductor region is formed, in the central portion or the peripheral portion?

(B) The definite meaning for the term of "exposed" recited in the claims, given that the claimed invention is directed to a device, which is naturally a workable final structure. However, according to the instant disclosure (see Fig. 1), in such a final structure, nothing in the first semiconductor layer (3) remains to be exposed, as its entire surface has been fully covered by one or more layers thereon. It is not clear how and/or in what sense it/they is/are exposed, and what happened to the exposed region(s) in the final structure.

(C) The definite meaning for the recited term of "exposed in the form of an insular region"; and/or, what is or forms the insular region; and/or, when and/or through what the first semiconductor layer is exposed, and in what sense such exposure is in the form of the recited insular region; and/or, what is the region that is definitely exposed through what layer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-9, 12-15 and 18-20, insofar as being in compliance with 35 U.S.C. 112 and/or 251, are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's admitted prior art ("AAPA").

AAPA discloses a semiconductor device (Figs. 19-21), comprising: a first semiconductor layer (3; N) of a first conductivity type having first and second major surfaces; a first semiconductor region (11; P) of a second conductivity type formed selectively in said first major surface of said first semiconductor layer; said first semiconductor layer is exposed in a peripheral portion of said first major surface and said first semiconductor layer is exposed in the form of an insular region (such as the portion or portions of region or regions of 5 under the opening 13) in a central portion (under the opening 13) of said first major surface; a second semiconductor region (6, under the opening 13; N) of the first conductivity type formed in a surface of said first semiconductor region, with a channel region provided between said second semiconductor region and said insular region of said first semiconductor layer; a gate insulating film (7) formed on a surface of said channel region; a first gate (8; under opening 13) formed on said gate insulating film; an interlayer insulating film (12) formed at least on said first gate; a first main electrode (10) formed over a surface of said interlayer insulating film and covering a surface of said second semiconductor region, said first main electrode being electrically connected to said second semiconductor region and (at least a portion of layer 10) having an end extending to a boundary (any region(s) therebetween or therein) between the peripheral portion of said first major surface and the central portion of said first major surface; a second main electrode (19) formed on said second major surface of said first semiconductor layer; a second semiconductor layer (1; P); and, an integral semi-insulating plasma CVD nitride film (14) covering at least the peripheral portion of said first major surface other than the central

portion (under the opening 13) of said first major surface and not extending beyond an upper portion of said first gate (8; under opening 13), said integral semi-insulating plasma CVD nitride film naturally having a conductivity which substantially does not lose function as an insulating film and substantially stabilizes breakdown voltage characteristics of the semiconductor device.

Regarding claims 3, 4, 8, 9, 14, 15, 19 and 20, the semiconductor device of AAPA further comprises a second gate (17) not covered with said first main electrode; and a gate interconnection line (9) formed selectively on a surface of said second gate, wherein a trench is formed between said first main electrode and said gate interconnection line for electrical isolation between said first main electrode and said gate interconnect line, wherein said first gate and said second gate are integrally formed and electrically connected; and wherein said plasma CVD nitride film further extends from a surface of said gate interconnection line through said trench to a portion of a surface of said first main electrode.

Regarding claims 12-22, it is noted that each of the above identified regions can also be regarded as each being formed of multiple regions.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6, 10, 11, 16, 17, 21 and 22, insofar as being in compliance with 35 U.S.C. 112 and/or 251, are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA.

The disclosure of AAPA is discussed as applied to claims 1-4, 7-9, 12-15 and 18-20 above.

Although AAPA does not expressly disclose the specific conductivity for the semi-insulating nitride film, it is noted that the conductivity of such a nitride layer used for field relieving is an art-known resulted-oriented parameter of importance subject to routine experimentation and optimization; and that these recited ranges of conductivity are well within (and/or, overlapping with) the art-known common range for the conductivity of such a nitride layer used for field relieving.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device of AAPA with the conductivity of the semi-insulating nitride layer being formed within a range that is substantially within or overlapping with the one as that recited in the claims, so that a semiconductor device with optimized performance would be obtained, as it has been held that:

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Response to Arguments

Applicant's arguments with respect to the claims rejected above have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Friday, 8:30 AM to 5:00 PM.

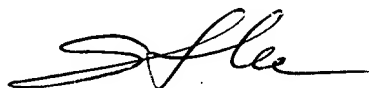
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



SHOUXIANG HU
PRIMARY EXAMINER

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November 2, 2007